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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/518,035	12/14/2004	Garfield P. Royer	1729-34	5476

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EXAMINER	
SHEIKH, HUMERA N	

ART UNIT	PAPER NUMBER
1615	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/518,035	ROYER, GARFIELD P.	
	Examiner	Art Unit	
	Humera N. Sheikh	1615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 August 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-41* is/are pending in the application.

4a) Of the above claim(s) *5,11-14,17,20-26,28-34,36-38 and 41* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6-10,15,16,18,19,27,35,39 and 40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/14/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of the Application

Receipt of the Response to Restriction/Election requirement and Applicant's Arguments/Remarks, all filed 08/13/08 and the Information Disclosure Statement (IDS) filed 12/14/04 is acknowledged.

Applicant's election of Group I (claims 1-41) and Election of Species (1) Matrix Polymer: dextran sulfate; (2) Coating: HPMC; (3) Form: bead, sphere, granule; and (4) Medicinal: antineoplastic, in the reply filed on 13 August 2008 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 5, 11-14, 17, 20-26, 28-34, 36-38 and 41 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 08/13/08.

Claims 1-4, 6-10, 15, 16, 18, 19, 27, 35, 39 and 40 are being examined in this action. Claims 42-44 have been cancelled. Claims 1-4, 6-10, 15, 16, 18, 19, 27, 35, 39 and 40 are rejected.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 16, line 2 recites "*dextran sulfate (>100,000 MW)*". The claim is indefinite because it is unclear as to whether the limitation contained in the parentheses is actually a required part of the claim or merely recited for exemplary purposes only. It is suggested that the limitation contained in parentheses "(>100,000 MW)" be either positively recited or deleted.

* * * * *

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-4, 6-10, 15, 16, 19, 27, 35, 39 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saito *et al.* (hereinafter "Saito") (U.S. Patent No. 6,344,209) in view of Bell *et al.* (hereinafter "Bell") (U.S. Pat. Appln. Publn. No. 2002/0055143 A1).

Saito ('209) teaches an apatite-coated solid composition containing a biodegradable polymer, an apatite-coated solid composition containing a biodegradable polymer and a medicinal substance having sustained release properties and a method for producing the solid composition (see column 1, lines 6-10); (col. 2, line 39 – col. 3, line 37) and Abstract.

Suitable biodegradable polymers disclosed include hyaluronates, polyethylene glycol and gelatin, for example (col. 4, lines 43-64).

Suitable medicinal substances disclosed are anti–tumor agents including antineoplastic agents such as cisplatin (col. 6, line 65 – col. 7, line 3). The medicinal substance is employed before molding with the aid of suitable excipients such as calcium sulfate hemihydrate (col. 15, lines 21-33).

The pharmaceutical composition can be produced by dissolving a biodegradable polymer in which the medicinal substance is dispersed and forming the solution into spheres, rods, needles, pellets, films or the like by an appropriate method (col. 17, lines 59-67).

In accordance with the invention, a substrate, i.e., (1) a solid composition containing a biodegradable polymer, (2) a solid composition containing a biodegradable polymer and a medicinal substance is immersed in an apatite-forming buffer solution so as to coat the surface of the substrate with apatite. The substrate is preferably used in granular form (granules, fine particles, fine granules) (col. 15, lines 8-20); (col. 16, lines 1-9). Also see column 3, lines 18-

37), whereby Saito teaches a method for producing the solid composition comprising a biodegradable polymer and medicinal agent.

The apatite-coated solid composition can be processed into an injectable product by suspending the composition together with a dispersant, using for example, polysaccharides such as hyaluronic acid (col. 20, lines 9-32).

Acids such as aspartic acid and glutamic acid are disclosed at column 14, lines 64-65. This teaching meets the limitation of a 'complexing agent' as in instant claim 10.

Saito teaches that the apatite-coated solid composition can be used directly or used as a material for the manufacture of various dosage forms. Parenteral dosage forms can be administered topically (e.g., subcutaneous injections, implants, etc.) (col. 19, line 66 - col. 20, line 8).

The apatite-coated solid composition can be used to treat and repair bone tissue after surgery for lung cancer, breast cancer, etc. (col. 20, lines 43-58).

The examples at columns 22-24 demonstrate processes for preparing the apatite-coated solid compositions which contain biodegradable polymers.

Saito does not teach the matrix polymer - dextran sulfate.

Bell ('143) teaches bone precursor compositions suitable for injection, which contain glucosaminoglycans and polysaccharides, including dextran sulfate, chondroitin sulfate and hyaluronic acid (see ¶s [0072-0073]) as well as inorganic compounds such as calcium sulfate hemihydrate, therapeutic agents and colony stimulating factors (CSF). The glucosaminoglycans

and polysaccharides (i.e., dextran sulfate) are useful in the development or regeneration of tissue structure and function (¶ [0068]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the glucosaminoglycans and polysaccharides (i.e., dextran sulfate of Bell within the coated solid compositions of Saito. One would do so with a reasonable expectation of success because Bell teaches bone precursor compositions that comprise polysaccharides, such as dextran sulfate, which contain biological, physiological and structural information for the development or regeneration of tissue structure and function. The expected result would be an improved composition for treating diseases and conditions of bone.

* * * * *

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Saito *et al.* (hereinafter "Saito") (U.S. Patent No. 6,344,209) in view of Bell *et al.* (hereinafter "Bell") (U.S. Pat. Appln. Publn. No. 2002/0055143 A1) as applied to claims 1-4, 6-10, 15, 16, 19, 27, 35, 39 and 40 above and further in view of Petersen *et al.* (hereinafter "Petersen") (U.S. Pat. Appln. Publn. No. 2002/0071827 A1).

The teachings of Saito are discussed above. Saito does not teach hydroxypropylmethyl cellulose (HPMC).

Petersen ('827) teaches a bone graft substitute composition that may include a mixture comprising calcium sulfate hemihydrate, plasticizing substances - cellulose derivatives such as hydroxypropylmethyl cellulose, bioactive agents such as hyaluronic acid, growth factors, bone marrow, etc. and additives such as antitumor agents. See ¶s [0014]-[0020]; [0041]-[0045]. The

bone graft substitute composition can be mixed into a paste and then loaded into a syringe and ejected for an extended period of time [0016].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the HPMC of Petersen within the apatite-coated solid composition of Saito. One would do so with a reasonable expectation of success because Petersen teaches inclusion of cellulose derivatives (i.e., HPMC) as an effective means to provide beneficial effects and properties, such as plasticizing properties. The expected result would be an enhanced composition for the treatment of diseases, such as cancer.

* * * * *

Claims 1-4, 6-10, 15, 16, 18, 19, 27, 35, 39 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Petersen *et al.* (hereinafter "Petersen") (U.S. Pat. Appln. Publn. No. 2002/0071827 A1) in view of Bell *et al.* (hereinafter "Bell") (U.S. Pat. Appln. Publn. No. 2002/0055143 A1).

Petersen ('827) teaches a bone graft substitute composition that may include a mixture comprising calcium sulfate hemihydrate, plasticizing substances - cellulose derivatives such as hydroxypropylmethyl cellulose, bioactive agents such as hyaluronic acid, growth factors, bone marrow, etc. and additives such as antitumor agents. See ¶s [0014]-[0020]; [0041]-[0045].

The bone graft substitute composition can be mixed into a paste and then loaded into a syringe and ejected for an extended period of time [0016].

Petersen does not teach the matrix polymer - dextran sulfate and a complexing agent - chondroitin sulfate.

Bell ('143) teaches bone precursor compositions suitable for injection, which contain glucosaminoglycans and polysaccharides, including dextran sulfate, chondroitin sulfate and hyaluronic acid (see ¶s [0072-0073]) as well as inorganic compounds such as calcium sulfate hemihydrate, therapeutic agents and colony stimulating factors (CSF). The glucosaminoglycans and polysaccharides (i.e., dextran sulfate, chondroitin sulfate) are useful in the development or regeneration of tissue structure and function (¶ [0068]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the glucosaminoglycans and polysaccharides (i.e., chondroitin sulfate & dextran sulfate) taught by Bell within the bone graft substitute compositions of Petersen. One would do so with a reasonable expectation of success because Bell teaches bone precursor compositions that comprise polysaccharides, such as dextran sulfate and glucosaminoglycans such as chondroitin sulfate which contain biological, physiological and structural information for the development or regeneration of tissue structure and function. The expected result would be an improved composition for treating diseases and conditions of bone.

* * * * *

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re*

Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

(1) Claims 1-4, 9, 10, 16, 19, 27 and 35 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-3, 13, 15-19 and 29 of U.S. Patent No. 6,391,336 ('336 Patent). Although the conflicting claims are not identical, they are not patentably distinct from each other because the '336 Patent also claims a solid composition comprising an aqueous mixture of: a) an antineoplastic agent, b) a calcium sulfate hemihydrate and a complexing agent, whereby the composition is based on the hydration reaction product of the aqueous mixture.

(2) Claims 1-4, 6-10, 16, 19, 27 and 35 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 3-7, 12-14, 16-17, 20, 28, 44-45 and 48-49 of U.S. Patent No. 6,497,901 ('901 Patent). Although the conflicting claims are not identical, they are not patentably distinct from each other because the '901 Patent also claims a matrix delivery system comprising a) calcium sulfate, b) a conditioning agent, c) a matrix polymer, d) a complexing agent and e) an antineoplastic agent, whereby the matrix delivery system becomes a solid by hydration.

(3) Claims 39 and 40 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-6, 17, 18, 33 and 35-39 of U.S. Patent No. 6,630,486 ('486 Patent). Although the conflicting claims are not identical, they are not patentably distinct from each other because the '486 Patent also claims a method of producing sustained release of an active agent comprising administering a solid composition comprised of a) an active agent, b) calcium sulfate hemihydrat, c) a matrix polymer and/or d) a complexing agent, whereby the composition is in the form that includes a bead, tablet, wafer, sphere, granule or cylinder.

(4) Claims 1-4, 6-8, 16, 19 and 27 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 73, 74 and 76-80 of copending Application No. 10/838,303 ('303 application). Although the conflicting claims are not identical, they are not patentably distinct from each other because the '303 application also claims a solid composition for the controlled release of an active agent comprising a) calcium sulfatel, b) a conditioning agent (calcium stearate) and a matrix polymer whereby the composition is a solid matrix due to the hydration of the calcium sulfate.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

--No claims are allowed at this time.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Humera N. Sheikh whose telephone number is (571) 272-0604. The examiner can normally be reached on Monday-Friday during regular business hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Woodward, can be reached on (571) 272-8373. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have any questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Humera N. Sheikh/

Primary Examiner, Art Unit 1615

hns

November 10, 2008